CORRELATION BETWEEN MENTAL QUALITY AND TRAINING INTENSITY IN UNIVERSITY SWIMMERS

CORRELAÇÃO ENTRE QUALIDADE MENTAL E INTENSIDADE DE TREINAMENTO DE NADADORES UNIVERSITÁRIOS

CORRELACIÓN ENTRE LA CALIDAD MENTAL Y LA INTENSIDAD DEL ENTRENAMIENTO EN NADADORES UNIVERSITARIOS

Original Article
Artigo Original
Artículo Original

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ABSTRACT

Introduction: We should pay attention to physical and psychological training still in the growth phase of athletes to ensure a better overall performance quality. Psychological training can be an effective tool to improve the technical level and skills of swimming. Objective: This paper discusses the relationship between mental health education and training intensity in college swimmers. Methods: The mental health of professional swimmers in college sports is explored with study subjects undergoing a 10-week training trial. The comparison of clinical effects between various psychological training modalities and swimmers' self-management is analyzed. In a second step, this paper performs statistics and analysis on the questionnaire and experimental data. Results: The exercise ability of the control group was significantly improved after relaxation training, tension training, and thought control training (P<0.05). The results showed that the learning effect of the experimental group was significantly better than that of the control group (P<0.05). Conclusion: Psychological training and self-regulation in training have a good effect on improving the mental quality of competitive sports players. This approach improves athletes' performance more effectively than other approaches. The psychological self-regulation training method is one that swimming coaches should pay attention to and advocate vigorously. ***Level of evidence II; Therapeutic studies - investigation of treatment outcomes.***

Keywords: Swimming; Mental Status and Dementia Tests; High-Intensity Interval Training; Correlation of Data.

RESUMO

Introdução: Devemos prestar atenção aos exercícios físicos e psicológicos ainda na fase do crescimento dos atletas para garantir uma melhor qualidade geral de seu desempenho. O treinamento psicológico pode ser uma ferramenta eficaz para melhorar o nível técnico e as habilidades da natação. Objetivo: Este artigo discute a relação entre educação em saúde mental e intensidade de treinamento nos nadadores universitários. Métodos: A saúde mental de nadadores profissionais em esportes universitários é explorada com os sujeitos do estudo sendo submetidos a um teste de treinamento de 10 semanas. A comparação dos efeitos clínicos entre diversas modalidades de formação psicológica é executada e analisa-se a autogestão dos nadadores. Num segundo momento, este artigo realiza estatísticas e análises sobre o questionário e dados experimentais. Resultados: A capacidade de exercício do grupo controle foi significativamente melhorada após o treinamento de relaxamento, treinamento de tensão e treinamento de controle de pensamento (P<0,05). Os resultados mostraram que o efeito de aprendizagem do grupo experimental foi significativamente melhor do que o do grupo controle (P<0,05). Conclusão: O treinamento psicológico da autorregulação no treinamento tem um bom efeito na melhoria da qualidade mental dos jogadores esportivos competitivos. Essa abordagem melhora o desempenho do atleta de forma mais eficaz do que outras abordagens. O método de treinamento psicológico da autorregulação é um método que os treinadores de natação devem prestar atenção e defender vigorosamente. ***Nível de evidência II; Estudos terapêuticos – investigação dos resultados do tratamento.***

Descritores: *Natação; Testes de Estado Mental e Demência; Treinamento Intervalado de Alta Intensidade; Correlação de Dados.*

RESUMEN

Introducción: Debemos prestar atención al entrenamiento físico y psicológico todavía en la fase de crecimiento de los deportistas para garantizar una mejor calidad general de su rendimiento. El entrenamiento psicológico puede ser una herramienta eficaz para mejorar el nivel técnico y las habilidades de natación. Objetivo: Este trabajo analiza la relación entre la educación en salud mental y la intensidad del entrenamiento en nadadores universitarios. Métodos: Se explora la salud mental de los nadadores profesionales de deportes universitarios con sujetos de estudio sometidos a una prueba de entrenamiento de 10 semanas. Se realiza la comparación de los efectos clínicos entre varias modalidades de entrenamiento psicológico y se analiza la autogestión de los nadadores. En un segundo paso, este documento realiza estadísticas y análisis sobre el cuestionario y los datos experimentales. Resultados: La capacidad de ejercicio del grupo de control mejoró significativamente tras el entrenamiento de relajación, el entrenamiento de

tensión y el entrenamiento de control del pensamiento (P<0,05). Los resultados mostraron que el efecto de aprendizaje del grupo experimental fue significativamente mejor que el del grupo de control (P<0,05). Conclusión: El entrenamiento psicológico de la autorregulación en el entrenamiento tiene un buen efecto en la mejora de la calidad mental de los jugadores deportivos de competición. Este enfoque mejora el rendimiento de los atletas de forma más eficaz que otros enfoques. El método de entrenamiento de autorregulación psicológica es uno de los que los entrenadores de natación deberían prestar atención y defender enérgicamente. ***Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.***

Descriptores: *Natación; Pruebas de Estado Mental y Demencia; Entrenamiento de Intervalos de Alta Intensidad; Correlación de Datos.*

DOI: http://dx.doi.org/10.1590/1517-8692202329012022_0370 Article received on 06/08/2022 accepted on 07/15/2022

INTRODUCTION

At present, people's material conditions have been improved. A variety of physical and mental problems followed. Exercise and fitness are a body-centered mindset that is gaining more and more attention.[1] The number of people participating in sports has increased in recent years. There is an expectation of improving physical and mental development. Sports psychology has only recently begun to develop. From the 1920s onwards, the discipline was gradually separated. However, it was not used in sports until 1976. Methods and programs of spiritual training vary. This paper aims to explore the effectiveness of the Exercise of self-control mentality in swimmers in college sports.[2] The results can lay a foundation for swimming coaches to conduct psychological training in training and training.

METHOD

Research objects

This paper uses a self-made psychological training method to conduct experiments on swimmers.[3] This paper conducted 200 questionnaires on different swimming teams of different colleges. We issued 180 questionnaires, and the recovery rate was 90%. The number of valid questionnaires was 165. The total effective rate is 91.67%.

In this article, 20 swimmers were trained for ten weeks. This compares the effects of various mental exercises. The male players ranged in age from 18 to 23 years old. This paper adopts the random sampling method to divide the subjects into the control group and the experimental group. A total of 10 people in each group experimented.[4] This study evaluated the development of specific speed, recovery heart rate, specific endurance, and recovery heart rate in 50-meter and 1500-meter freestyle.

From Table 1, it can be seen that there is no significant difference between the control group and the experimental group in terms of age, training years, 50-meter freestyle performance, 1500-meter freestyle performance, and heart rate before and after the test.[5] This approach ensures that the selected subjects are not substantially different.

Test scheme

The experimental group cultivated the psychological quality of sports competition through psychological self-control exercise.[6] The control group adopted relaxation training, tension training, thought control training, and attention concentration training to cultivate the psychological quality of the simulation competition. The athlete joined the tactical swimming exercise in addition to the mental training. This method effectively removes lactic acid from the body. The method enables the body functions of the athlete to be supplemented.

Table 1. Summary of the status of the two team members participating in the trial.

	Test group	Control group	T	P
Age	19.08±2.17	18.95±2.18	0.264	0.902
Training years	5.5±0.84	5.78±0.51	-0.88	0.484
50m Self-Grade(s)	29.74±0.58	29.65±0.51	0.407	0.781
1500m Self-Grade(s)	1144.09±5.93	1141.5±7.15	0.869	0.484

Training monitoring mode for swimmers

This paper establishes an integration matrix of motion information based on the motion reconstruction of high-level swimming.[7] At this point, we built a video tracking function for complete tracking training. Its expression is:

$$G(x,y,z)=1-\frac{M(x,y,z)+N(x,y,z)}{\sqrt{x^2+y^2+z^2}}+a\frac{y}{x}+b\frac{z}{x}+c\frac{z}{t} \quad (1)$$

According to the above results, the trajectory of the entire training process of the high-level swimmers can be obtained.

$$Q(x,y,z)=\lim_{\Delta\mu\to 0}\left[\frac{d(\mu+\Delta\mu)}{dx}\right]-Q(\theta_i) \quad (2)$$

The relevant pixel point $\Delta\mu$ is used for the overall threshold division of the whole process. The grayscale feature Θ is trained on the entire video image.[8] This paper proposes an edge-based feature-based assignment set. The three-dimensional reconstruction model of the high-level swimmer's movement is constructed. It is expressed as follows:

$$G(x,y,z)=1-\frac{\sqrt{M(x,y,z)^2+N(x,y,z)^2}}{\sqrt{x^2+y^2+z^2}} \quad (3)$$

Data Analysis

The T-test method was used to compare the experimental group with the control group.

There is no need for a code of ethics for this type of study.

RESULTS

Research on standard mental exercise methods of swimmers

On this basis, this paper conducts a questionnaire study on several swimming teams.[9] Studies have found that relaxation training, tension training, mind control training, attention concentration training, and self-control training are generally adopted when cultivating players' mental training (Table 2).

Results of the test

All swimmers were tested on their psychological self-control and the effects of 4 other training methods.[10] This study used the T-test to

compare the experimental group with the control group. The results of various training methods are shown in Tables 3 and 4.

From Table 3, it can be seen that the performance of the two groups in the 50-meter freestyle is the same as before the training started, and their heartbeats are the same. The data between the two groups was not statistically significant (P>0.05). After more than two months of Exercise for more than two months, the learning effect of both groups was significantly improved (P<0.05). Comparing the results of the two groups showed that the learning effect of the experimental group was significantly better than that of the control group through the self-regulating mentality exercise (P<0.05). Compared with the standard control group, the heart rate of the experimental group was relatively stable.[11] Psychological self-control training is a meaningful way to improve athletes' psychological quality and athletic ability.

From Table 4, the performance of the two groups in the 1500m freestyle swim is the same before the start of practice. And their heartbeats were the same at the start of the test. There was no statistical significance between the two groups (P>0.05). After more than two months of mental Exercise, the learning effects of both groups were significantly improved (P<0.05). This suggests that both learning styles can improve motor performance. By comparing the learning effects of the two groups, the results show that the self-regulation of psychological Exercise can significantly improve the performance of the two groups (P<0.05). Therefore, in the training process, the athletes' ability can be improved by training the students to simulate competition.[12] Psychological intervention is an essential means of improving athletes' athletic ability. It is an exceptional training tool.

Table 2. Research on Several Common Swimmers' Developmental Psychological Training Methods.

	Test group	Control group	T	P
Pre-test scores	29.75±0.58	29.65±0.51	0.4114	0.7854
Post-test scores	27.32±0.4	27.94±0.59	-2.695	0.033
T	20.7262	12.6236		
P	0.001	0.0001		
heart rate before measurement	34	34		
heart rate after measurement	32	33		

Table 3. Comparison of athletes in the experimental group and the control group in the 50-meter swimming event.

	Test group	Control group	T	P
Pre-test scores	29.75±0.58	29.65±0.51	0.4114	0.7854
Post-test scores	27.32±0.4	27.94±0.59	-2.695	0.033
T	20.7262	12.6236		
P	0.001	0.0001		
Heart rate before measurement	34	34		
Heart rate after measurement	32	33		

Table 4. Comparison of training results of 1500m swimmers in the experimental group and the control group.

	Test group	Control group	T	P
Pre-test scores	1144.08±5.93	1141.5±7.14	0.8657	0.4884
Post-test scores	1129.68±5.08	1135.33±5.32	2.3925	0.0517
T	36.093	6.084		
P	0.001	0.0001		
heart rate before measurement	26	16		
heart rate after measurement	32	31		

DISCUSSION

In the absence of clear training goals, it is easy to cause athletes to have no apparent results in training. If an athlete sets it too high, it will likely affect their confidence and motivation. In the psychological training of swimmers, it is significant to guide them to set corresponding training indicators according to their actual training conditions. In this way, players can give full play to their potential in training and competitive competitions to achieve their goals.[13] Correct training goals can fully mobilize the potential of athletes and achieve the purpose of surpassing their abilities. This allows athletes to create new results in training.

Athletes are usually in a tense state of mind during the game. If they are too nervous, it will easily cause the game to be unsatisfactory. In the usual mental Exercise, the coaches should guide the athletes to learn how to regulate their breathing. This will improve your mentality and game ability. When the athlete's mood swings are relatively large, they can restore a calm state of mind by adjusting their breathing. The relevant psychological training staff guides the players in daily training to learn how to adapt to the competition. Ask them to think of each practice as one that raises their tension and makes them take each practice more seriously. Athletes can achieve self-regulation during the competition after prolonged Exercise. This allows them to be more objective and calmer in the face of mistakes. In this way, their strength will be best reflected in the game.

The most fundamental condition to maintaining physical Exercise is maintaining a good physique. Swimming boosts the production of endorphins in the body. The pituitary gland produces this hormone. It can regulate nerves, make people feel happy, and calm people. And it keeps people in a good mood. This allows the body to continuously take regular deep breaths and promote oxygen flow in the body. The purpose of relaxation is achieved by regularly removing harmful impurities from the body. The athlete's blood circulation in the water increases, and the body temperature rises. This can have a particular impact on the athlete's study and life. Participating in a proper swimming exercise can reduce the mental tension of athletes.

CONCLUSION

Athletes should focus on being down-to-earth when carrying out the above mental training. If the athlete does not have the proper psychological training, the difference between the competition and the goal will deteriorate the athlete's psychological condition. On the contrary, proper Exercise can enhance the mental state of athletes. It helps a lot with their mindset and mindset. This training method can help athletes overcome abnormal emotions during competition. We can achieve the best level of competition by training and improving the mental quality of the players.

All authors declare no potential conflict of interest related to this article

AUTHORS' CONTRIBUTIONS: Each author made significant individual contributions to this manuscript. GL: writing; LZ: data analysis; YT: article review and intellectual concept of the article.

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